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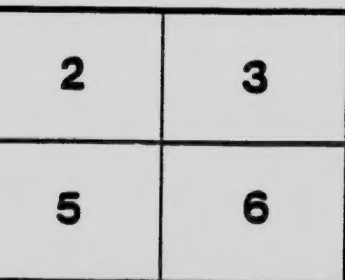
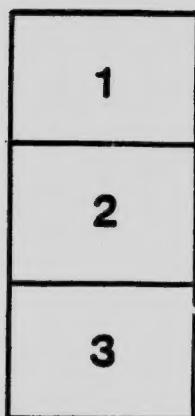
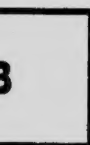
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# THE PRODUCTION OF TIMOTHY SEED IN ALBERTA

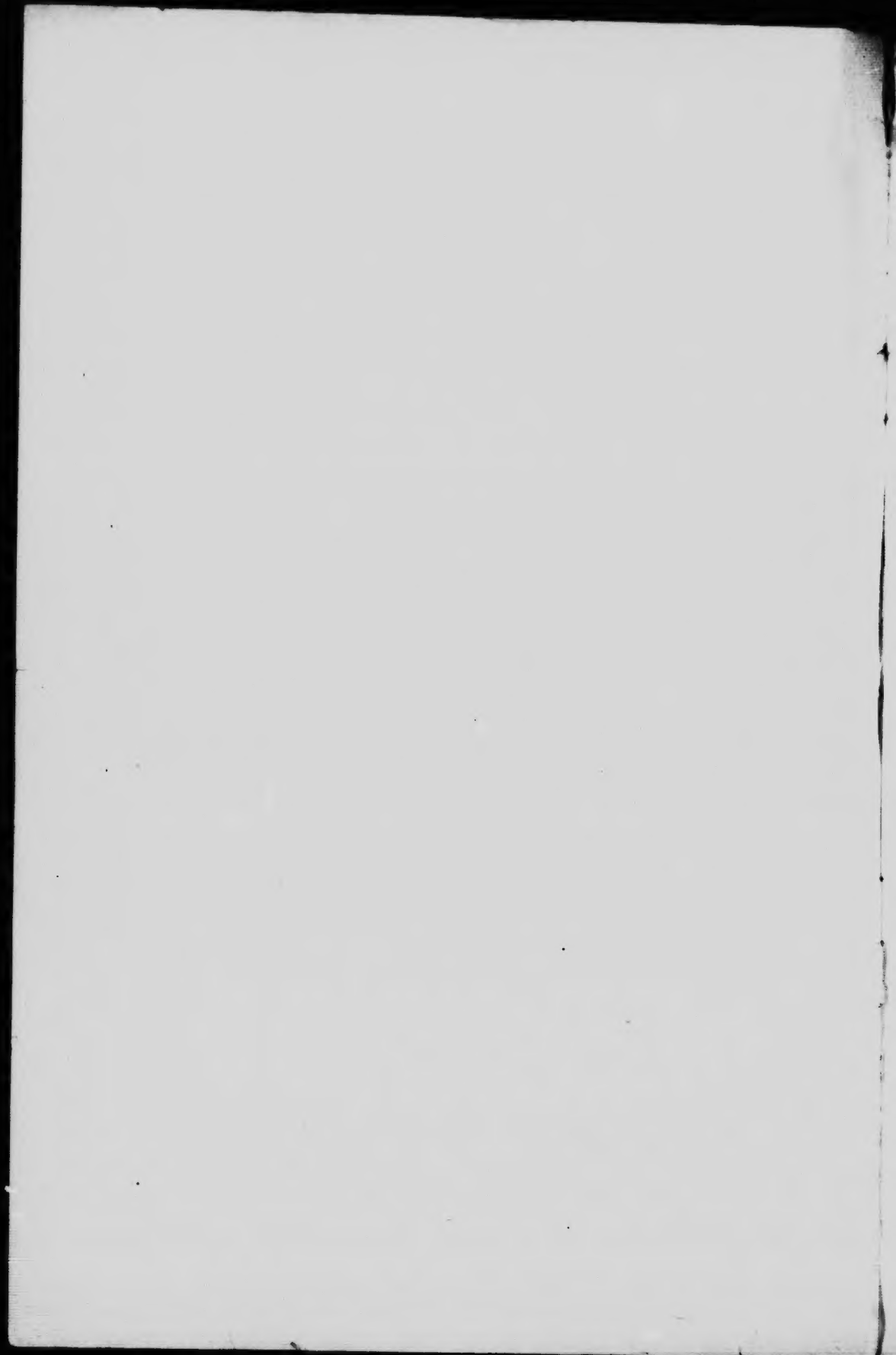
*By* H. A. CRAIG



ISSUED UNDER THE DIRECTION OF  
HON. DUNCAN MARSHALL,  
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# THE PRODUCTION OF TIMOTHY SEED IN ALBERTA

## THE PROVINCE ADAPTED TO TIMOTHY GROWING

The Department of Agriculture has recently been investigating the possibilities of timothy seed production in the Province and likewise of marketing the seed profitably. There is no doubt about the possibility of producing a superior class of seed or of marketing the seed readily at a satisfactory profit. Timothy is a successful crop over a considerable part of the Province in the centre and north, in scattered districts along the entire western part of the Province and on the irrigated lands. To produce seed that will bring high prices in any market it is necessary to manage, handle and thresh the crop for the special end of seed production. Up to the present time comparatively little timothy seed has been produced in any of the Prairie Provinces. During 1915, however, sufficient Alberta grown seed was marketed to test the requirements of the Eastern Canadian trade and likewise to establish the standing of Alberta seed in Eastern markets. Since the beginning of the year six or eight cars of Alberta seed have found their way to Eastern markets. Reports from the trade emphasize the distinct superiority of the Alberta seed with respect to bold, plump kernel and good size in comparison with the United States product which at present constitutes a large proportion of the supply for Eastern Canada.

## CANADA IMPORTS TIMOTHY SEED.

There is open opportunity for the timothy seed grower at present a large home market and also a good foreign market. The Dominion alone requires between 600,000 and 700,000 bushels of timothy seed annually of which sixty or seventy per cent., or about 400,000 bushels, are imported from the United States. On account of the adaptability of our soil to timothy growing over a considerable area and of the superiority of the Alberta grown seed, it would appear to be sound economy for Alberta farmers who have the right kind of land, to give some attention in the future to the production of this crop for the Canadian market.

## THE UNITED STATES MARKET.

There is equal opportunity for securing a good market in the United States. Canadian grown timothy seed is admitted duty free to the United States where the demand at present is very keen and the price correspondingly high. While the United States exports considerable timothy seed, conditions are favorable to the putting of Alberta seed on the United States market. A considerable proportion of the timothy seed of the United States is produced on the heavy lands of the Central States such as

Ohio, Iowa, Illinois, Indiana and Missouri. Iowa alone produces over 1,000,000 bushels annually and on land ranging in value from \$75 to \$150 per acre. The United States Department of Agriculture estimates the advance in the capital valuation of land to be twenty-five per cent. over the past four years, which constitutes a considerable additional cost in the price of land products. In addition to the handicap of heavy capital investment as compared with Alberta, the United States timothy seed producer has to meet a tariff amounting to 17½% in entering Canada. During the past ten years the wholesale price of timothy seed on the Chicago market has increased from \$4.50 per cwt. to \$7.00 per cwt. which is the average price over the twelve months of the year 1915. The price closed in December of 1915 at \$8.00 per cwt. Under these conditions and with no trade barriers and a superior quality of seed, there should be no difficulty in entering the United States market.

#### NORTHERN GROWN SEED

Independent of local or temporary conditions which favor the production of seed there are general and fundamental reasons why the special work of seed production over the whole series of field crops should become thoroughly established in the Province. It is a recognized principle in seed production that the farther north a crop can be made to grow bountifully and mature satisfactorily the better constituted the seed is. This has already been demonstrated in Western Canada with respect to the cereals. Alberta Red advanced perceptibly on the Turkey Red from Kansas as to size of kernel, quality of content and weight per bushel. The Alberta oat has practically made a new standard of weight per bushel fashionable for the greatest of feed grains. Good seed is the first condition to successful production of crops. Alberta cereals are already finding their way east and south through wholesale seed houses. The value of seed is a question of constitution depending upon symmetry and perfection in kernel. The recognized plumpness of the Alberta timothy kernel is the latest evidence of the fitting and inevitable survival of northern grown seed. There is every reason to expect that we shall have a general development in the special production of seed in all field crops including cereals, grasses and alfalfa. The combination of advantages represented in cheap land, suitable soil and climate and unlimited markets makes failure in the work practically impossible under reasonable management.

#### SOIL ADAPTATIONS AND CULTURAL METHODS.

##### CROP SYSTEMS AND SOIL.

The growing of timothy seed is usually not the whole or even the larger part of any farm enterprise but is a branch of work that may commonly be fitted to any one of a variety of types of farming. It is largely determined by special soil or of soil and climate combined. While timothy is not commonly a success on the quick lands and in the sharp ripening climate that develops the gluten in wheat, there are on many grain farms, particularly those devoted to the raising of feed grains such as oats and barley, parts of the farms which are too moist and rich for the best maturing of cereal crops. This kind of land is admirably suited to the growing of

timothy. Rich, heavy, moist soils, provided that they can be drained, produce timothy most successfully. While good crops of timothy can be raised on moderately light land with plenty of moisture, the surest and best crops are grown on heavy soil.

Even on land that is heavy and rich and wholly suited to grain production there is a need and an advantage in the variety afforded by the introduction of timothy and other meadow crops. Continuous grain-growing will exhaust any kind of soil. The growing of meadow crops restores organic matter in the form of roots and stems in all soils. In the case of light soils it binds and prevents blowing. The growing of timothy may thus assist directly in the conservation of fertility and the maintenance of good physical condition in all soils and likewise in the suppression of weeds.

#### TIMOTHY STRAW.

Where timothy is grown for seed the bulk of the plant that under other circumstances makes the most valuable part of the marketable hay crop becomes a by-product. This does not necessarily mean that it is of low value. On the contrary, for the proper care of the seed with respect to the matter of hulling the crop should not be allowed to stand too long. The crop may be cut early enough to make good hay and the grain will ripen without shrinking during the curing process. If baled after threshing, the straw has a market value below that of the regular hay crop, but may be used as loose roughage for steers, store stock, or for the work horses of the farm.

#### PREPARATION OF LAND.

For the special production of timothy seed special care must be taken. Equally important with the quality of the seed itself is its purity. The growing of clean timothy should be easier than the growing of any other kind of grass seed. The areas suited to timothy growing are the moist, heavy lands where weeds do not commonly survive or flourish in cultivated crops. Timothy itself, if a good stand, is one of our best crops for the smothering of weeds. While few of the weeds classed as "noxious" occur in the areas suited to timothy growing, the chief drawback to our seed is the presence of impurities chiefly of small native seeds. On this account it is important that land that is to be seeded to timothy should be thoroughly and carefully prepared.

To put land in the best condition for seed production, it should be carefully summer-fallowed the year previous to being seeded. In addition to having the land free from weeds and grasses, it is important to have it well firmed with the packer or in some other way. Land which has been in corn or roots, if the crop has been kept clean and well cultivated, should be in as good condition as is summer-fallow, and even clean stubble, if ploughed and thoroughly cultivated, should likewise be satisfactory.

#### SEEDING.

Timothy may be sown either with a grass seed attachment or with a separate grass seeder operated by hand. In either case it is wise to use the drag harrow after sowing in order that the seed may be lightly covered. Investigations at the Lacombe

Experimental Farm have gone to show that an increased crop of hay can be secured when timothy has been seeded without a nurse crop. Furthermore, the 1915 results at this station would indicate that the yield of hay has a direct bearing on the yield of seed; that is, the heavier the yield of hay the larger will be the amount of seed produced. The following table which is the result of only one year's trial is quite conclusive in this regard.

	Yield of hay per acre	Yield of seed per acre
Plot No. 1	2 tons, 1600 lbs.	11 bus. 7 lbs.
Plot No. 2	4 tons, 160 lbs.	14 bus. 25 lbs.

In most cases a stronger and cleaner stand can be secured without a nurse crop. However, it must be taken into consideration that the increase in the yield of hay or timothy seed will have to cover the amount of the loss of the nurse crop when the timothy is seeded alone. It is very questionable if the increase in yield will do this. Barley is a suitable nurse crop when sown at the rate of a bushel and half to the acre. It is an early ripening crop and consequently gives the young grass a chance to make a substantial growth after the barley is harvested. When the barley is sown thinly it will not have the same tendency to smother the young grass as it will with heavy seeding.

For seed production, timothy should not be sown too thickly; from five to six pounds per acre is quite sufficient. If seed were absolutely reliable and the conditions of soil and seeding wholly favorable to the germination of all the seed sown, seeding at a rate as low as four pounds per acre might be sufficient. When land has been in timothy for two or three seasons, it will be found that the stand becomes so thick that the crop will be unproductive. Heavy discing and top manuring will improve such a condition but after two crops have been harvested it is generally wise to plough the land and sow to some other crop.

#### HANDLING THE CROP FOR SEED.

Since timothy is a small seed, it is very difficult to separate the finer weed seeds with a screen. It will be found economical to hand-pull "lamb's quarters" or any other ripe weeds before cutting. It is very important that the crop should be cut at the proper stage of ripening else a good quality of seed cannot be expected. To prevent hulling, the crop should be cut as soon as the brown tinge is evident over the field. At this stage, the seed will be plump and will not hull to the same extent as if left to ripen further. On the other hand, too early cutting should be avoided on account of the injurious effect on the vitality of the seed. From observation, it is evident that much of the timothy is cut too late rather than too early with the consequence that a considerable quantity of the seed is lost by shelling and the appearance is unfavorably affected by the presence of a large percentage of hulled grain.

#### HARVESTING AND CLEANING.

Timothy can be handled best by cutting with the ordinary grain binder. The sheaves should be made rather small so that they will dry out quickly for threshing. It is wise to stook imme-



diately after cutting and to handle as little as possible before threshing in order to prevent shelling. If the weather is favorable, threshing should commence within five or six days after cutting. If this is not possible, timothy should be stacked carefully as soon as dry. When threshing, the concaves of the machine should be well opened and the machine run much slower than for coarser grain. It will be found wise to keep separately some of the first seed threshed in case any weed seeds should have remained in the mill from a previous setting. If the above matters are observed closely grain will not be hulled, and should be of a good color, plump and free from weed seeds. Before marketing, timothy seed should be run through a fanning mill sufficiently often to clean out the chaff, weed seeds, etc., then stored carefully in a place which is thoroughly dry.

The following is an extract from the Report of the Dominion Seed Commissioner. This branch of the department has had a great deal of experience in the cleaning of timothy seed and therefore it has been considered wise to include this section of the report:

#### CLEANING GRASS AND CLOVER SEED.

"It is often difficult to secure satisfactory results in cleaning grass and clover seeds with the equipment available to farmers and small dealers. But the difficulty is usually in not having the necessary riddles and sieves or in the mill not being properly regulated. Any good fanning mill in which thorough control over the air current is obtained and a series of four or more riddles and sieves may be adjusted at will may be fitted and operated to do good work.

It is impossible to give instructions for fitting and operating a mill which will apply in all cases, as different samples of the same kind of seed may require quite different treatment, but there are general principles which should be observed.

It is quite important to have a full equipment of both wire and perforated zinc riddles and screens of all sizes made for small seeds. The want of any one of these may entail a waste of good seed or other loss many times greater than the total cost of the full equipment of screens. Before fitting the mill for cleaning, trials by hand should be made with the screens arranged in series one over the other to determine what screens should be used to produce the best possible results with the least possible waste of good seed. It will very often be found practicable and profitable to the farmer to make two grades in preparing his grass or clover for market. If, however, the seed has been taken from a weed infested field it is usually to the advantage of the producer to sell it in an uncleaned condition to a wholesale merchant who can clean it with special power cleaners or sell it for export.

The riddle or top screen should be just large enough to let the seed through and hold back the larger weed seeds. The seeds of many weeds are so similar in size to the seeds in which they occur that their separation can not be satisfactorily accomplished, especially when they are very prevalent. In cleaning out such seeds, regulate the slant of the riddle, amount of shake and size of the opening in the hopper so that as much of the seed as possible will find its way through the riddle. That is, do not give the



sieves so much shake or have them at such a pitch that much of the seed runs off the screen with the weed seeds. The slant of the sieve can be reduced by raising the back of the mill by putting small blocks of wood under it.

The lower screen should be just large enough *not* to let the good seed through. Woven wire cloth sieves are usually employed as lower screens.

The air blast should be strong enough to blow out everything lighter than the seed. It is not strong enough unless a few good seeds are being blown out with the chaff. This is the only way of taking out some weed seeds which, on account of their size, cannot be separated by sieves. It may be advisable to run the seed through the mill slowly once or twice to take out as many of the weed seeds as possible by the sieves and then make the separation by the air blast afterwards.

*Timothy Riddle.*—For most samples the 1-22 inch perforated zinc riddle will be found satisfactory. Many seeds of Canada thistle, docks, ribgrass or buckhorn and green foxtail will be removed by this sieve. When lamb's quarters or catchfly are prevalent the 1-25 inch riddle is required and its use will entail the loss of much timothy seed unless the mill is operated very carefully. Better work can be done with this sieve as a hand screen. Where the timothy seed is very plump, the 1-20 inch riddle should be used.

*The Lower Screen.*—The 30 by 30 (thirty spaces to the inch each way) woven wire screen will hold practically all of the timothy, while seeds of cinquefoil, plantain, chickweed, pass through. For wormseed mustard the 28 by 28 screen is better. Some mills are equipped with 8 by 36 or similar sieves instead of the 30 by 30 woven wire."

### SHIPPING.

For convenience in handling and also to prevent loss by leakage from cars in transit, it is wise to sack timothy. If shipped by lake and rail, transportation companies require that all shipments be sacked. It is very necessary that good strong cotton sacks be used for this purpose.

### MARKETING.

With the increase in timothy production, there is no doubt that several local firms will be interested in the buying and shipping of timothy seed. As the marketing season approaches the Provincial Department of Agriculture purposes investigating the timothy market in order to be able to advise those who have timothy for sale as to where the best market may be found. All correspondence respecting markets should be addressed to the Superintendent of Seed Branch, Department of Agriculture, Edmonton. Enquiries of this kind will receive careful and prompt attention. Furthermore, the Department will be pleased to render any assistance possible in all matters connected with the marketing of this seed.

